

**80/247/RVC****RESULT OF VOTING ON CDV**

Project number: <b>80/61996</b>	Reference number of the CD <b>80/223/CDV</b>
IEC/TC or SC <b>80</b>	Date of circulation <b>1999-12-10</b>
Title of the TC or SC concerned <b>Maritime navigation and radiocommunication equipment and systems</b>	

<b>Title of the committee draft:</b> Maritime navigation and radiocommunication equipment and systems - Shipborne voyage data recorder (VDR) - Performance requirements - Methods of testing and required test results
The above-mentioned document was circulated to National Committees with a request that voting take place for approval for circulation as an FDIS (or publication as a Technical Report)
<b>Voting results</b>  see printout attached
<b>Comments received</b> – see annex <sup>1</sup>
<b>In the case that the approval criteria for acceptance have been met,</b> <b>a</b> <input checked="" type="checkbox"/> The enquiry draft for vote (CDV) will be registered as an FDIS by (date) <b>1999-12</b>  <b>DECISION OF THE CHAIRMAN</b> (in cooperation with the secretariat), in the case that the approval criteria for acceptance have not been met or in the case of a draft Technical Report <b>b</b> <input type="checkbox"/> The enquiry draft for vote (CDV) will be published as a Technical Report by (date) ..... <b>c</b> <input type="checkbox"/> A revised committee draft will be circulated as an enquiry draft for vote (CDV) by (date) ..... <b>d</b> <input type="checkbox"/> A revised committee draft will be circulated for comment by (date) ..... <b>e</b> <input type="checkbox"/> The committee draft and comments will be discussed at the next meeting (date) .....  NOTE — In the case of a proposal <i>b</i> , <i>c</i> or <i>d</i> made by the chairman, P-members objecting to such a proposal shall inform the Central Office with copy to the secretary in writing within 2 months of the circulation of this compilation (see 2.6.5 of Part 1 of the ISO/IEC Directives).

Name or signature of the Secretary  P F C GRIFFITHS (1999-11-30)	Name or signature of the Chairman  A P NORRIS (1999-11-30)
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<sup>1</sup> to be collated on Form 8C and annexed.

## Result of Voting on CDV - Document 80/223/CDV

**Project: IEC 61996 Ed.1**

Maritime navigation and radiocommunication equipment and systems - Shipborne voyage data recorder (VDR) - Performance requirements - Methods of testing and required test results

**Circulation Date: 1999-03-19**

**Closing Date: 1999-08-31**

Country	Status	Sent	Received	Vote	Comments
Belgium	P	1999-08-30	1999-08-30	Y	Y
China	P	1999-08-09	1999-08-09	Y	-
Czech Republic	O	1999-08-19	1999-08-19	Y	-
Denmark	P	1999-08-30	1999-08-30	A	-
Finland	P	1999-08-30	1999-08-30	A	-
France	P	1999-08-30	1999-08-30	N	Y
Germany	P	1999-08-30	1999-08-30	Y	Y
Greece	O	1999-07-30	1999-08-02	A	-
Ireland	O	1999-08-31	1999-08-31	Y	-
Italy	P	1999-08-31	1999-08-31	Y	Y
Japan	P	1999-08-30	1999-08-30	Y	-
Mexico	O	1999-08-24	1999-08-24	Y	-
Netherlands	P	1999-08-30	1999-08-30	Y	-
Norway	P	1999-08-17	1999-08-17	Y	Y
Portugal	-	1999-07-25	1999-07-25	A	-
Sweden	P	1999-08-31	1999-08-31	Y	Y
U.S.A.	P	1999-08-13	1999-08-13	Y	Y
United Kingdom	P	1999-08-20	1999-08-20	Y	Y

		Approval Criteria	Result
<b>P-members voting: 11</b>			
<b>P-members in favour: 10 = 91 %</b>		<b>&gt;= 67%</b>	<b>APPROVED</b>
<b>Total votes cast: 14</b>	<b>Total against: 1 = 7 %</b>	<b>&lt;= 25%</b>	<b>APPROVED</b>
<b>Final Decision:</b>			<b>APPROVED</b>

### NOTES

1 Vote: Does the National Committee agree to the circulation of the draft as a FDIS:

Y = In favour; N = Against; A = Abstention.

2 Only votes received before the closing date are counted in determining the decision.

Late Votes: (0).

3 Abstentions are not taken into account when totalizing the votes.

4 P-members not voting: Egypt; Romania; Russian Fed.; (3).

## Annex

Date 1999-11	Document 80/223/CDV
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National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
Belgium	General		Editorial	It is to be regretted that references to the relevant numbers of A.861, are not included in the text.		The references have now been included.
UK	All	Headings	Editorial	Should all be in upright font, even if quoting from IMO A.81	Impose appropriate HEADING styles, removing direct formatting.	Agreed.
UK	2.1 & 5.4.2 & 6.1.13.4		Editorial	IEC 68-2-27:1987 has been renumbered	Replace by IEC 60068-2-27	Agreed.
UK	3.1.9		Editorial	"crew member" does not cover all circumstances. e.g. a pilot Change to "person"	a position at which a person is expected to be when performing one of the normal bridge duties at e.g., the following work stations	Agreed. "Crew member" has been changed to "person".
UK	4,5 & 6	-	General	Every REQUIREMENT in clause 4 or 5 needs a corresponding TEST in clause 6	Reword clause 6.1.4 as detailed in UK comment below to cover all requirements. Also include, as an informative Annex, a cross-reference table. A draft Annex NN is attached. Write any additional TESTS, or refer to examination of manufacturers documentation, as needed.	Agreed to adopt the proposed text from the UK in 6.1.4.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
USA	4.3.3.2 Note – this should be 4.3.4.3		Technical	Release and retrieval of VDR capsule	<p>Add:</p> <p>The capsule shall be designed to facilitate recovery by a Remotely Operated Vehicle (ROV) and by a diver. Specifically:</p> <p>The release mechanism shall be designed so that the capsule will release with a force not greater than the force capabilities of existing ROV s;</p> <p>The capsule shall be fitted with two (2) handles, on opposing sides of the capsule; designed in consideration with ROV and/or diver grasping ability; the handles shall be independent of the release mechanism.</p>	Agreed to add at end of paragraph – “(see 5.2)”.
Germany	4.3.4.3.1		General/ Technical	Protection of float free version against environmental influences like deep sea pressure as for diving version makes the construction of a float free extremely expensive and therefore unlikely. The exclusive carriage of deep diving version may additionally increase the costs of recovery because of the need of direct contact with the ship in any case. The aim of 4.3.4.3 is not fulfilled.	Focus on the advantage of portability of the float free version and revise applicable requirements of this and other clauses accordingly. Take orientation on requirements on comparable accident surviving equipment like EPIRB.	<p>Not agreed.</p> <p><u>NOTE BY THE SECRETARY.</u></p> <p>Throughout the comments that follow – if no specific reason is given for rejection – it means that it was “agreed by the Working Group to reject”.</p>
UK	4.3.4.3.1	1	Editorial	Reword to specify an essential requirement that was previously mentioned only incidentally in 5.5.1 (Installation Guidelines) See UK 19	The capsule containing the final recording medium shall be designed to be installed on the external deck of the vessel. It may be designed to remain fixed to the ship in all circumstances. Alternatively, it may be designed to float free automatically if the ship sinks (see 5.2).	Agreed. Inserted in 4.3.4.1.
UK	4.3.4.3.2	1	Editorial	Give positive instruction; aim for compatibility with other devices.	Add; “REPORT TO COASTGUARD AUTHORITY”	Agreed. Text amended to read “REPORT TO AUTHORITIES”

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
UK	4.3.5	1	Editorial	This requirement needs a test.	Rephrase the opening paragraph of 6.1.4 into a "catch all" form. See UK comment for 6.1.4.	Agreed. Already covered in UK comment for 4/5/6 in 6.1.4.
France	4.3.6		Major technical comments as follow :	Restricts the acceptable interfaces to the IEC 61162 series only and considers that the others are NOT part of the VDR. Therefore 4.3.6 is not compliant with (A.861/4.1).  The transfer of information from a non-IEC61162 Local Area Network to the VDR would involve an external device with one interface to the LAN and number of IEC 61162-compliant interfaces to the VDR. This is unrealistic from technical, financial and certification points of view.		Agreed. This covers the comment from Germany, Norway, Sweden and Italy. A revised text agreed as follows: "4.3.6 Interfaces (A.861/7) Interfacing to the various sensors required shall be in accordance with the relevant international interface standard, IEC 61162 series, where possible. (see Annex A)
Germany	4.3.6		General	Requirement of at least 16 input (listener) ports is not discussed and agreed in the working group	Overspecification - Delete	Agreed. See above.
Italy	4.3.6	Sentence 4	Technical	Considers that some interfaces are not part of the VDR. Therefore 4.3.6 is not in compliance with (A.861/4.1) and not consistent with 3.1.1.	"Shall not be considered to be part of the VDR system. However they...." – Delete	Agreed. See above.
Norway	4.3.6	2	Technical	IEC 61162-1 or -2 operates with ports. Other standards under preparation will not necessarily use this concept. The standard (previous paragraph) does not make the use of 61162 mandatory and the use of shall in this paragraph is not	When the VDR supports data input via the IEC 61162 interface standards it shall have enough input capacity to read all relevant data items (clause 4.6). If the VDR supplies input ports in accordance with IEC 61162-1 or IEC 61162-2, the device shall have at least 16 input (listener) ports (see annex B for details on relevant messages).	Agreed. See above.
Sweden	4.3.6		Technical	A number of 16 inputs according to 61162 is required. This is adequate only if 61162 is interpreted as 61162-1 or –2, which is not the intention.	"The VDR shall have at least 16 input (listener) ports conforming to IEC 61162-1 or –2 and may have additional IEC 61162 inputs."	Agreed. See above.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
USA	4.4.1	Para 6.	Editorial	Time and date information should be recorded in UTC (GMT).	Modify text to read, "Date and Time in UTC (GMT)."	Agreed. Add "and data source identity" after "....configuration..."
USA	4.4.1	Data block information	General	Significantly expand the Engineering data inputs. A working group of Operating Marine Engineers should meet and agree to the critical data elements that should be collected by the voyage data recorder.	Expand the Engineering data block fields.	Not agreed. Will be considered at the first maintenance cycle review in 2006.
Germany	4.5.1.1		General	Simple operation is not testable	Already covered by ergonomic requirements of IEC 60945 – Delete here	Agreed. Modify 4.5.1.1 to read as "Controls for use during the saving process shall be simple to use."
France	4.5.1.2 – 4.5.1.4		Other comments	The terms recording and saving need a definition and the items need a clarification.		Agreed. Add note to clarify as follows: "NOTE – saving process – preserving a copy of the data contained in the final recording medium."
UK	4.5.2	1 sentence2	Editorial	There is conflict with 4.5.4	Add waiver; Whenever electrical power is available the VDR shall operate, except as permitted in 4.5.4. (see 6.1.15)	Agreed.
Germany	4.5.4.1/2		General	Operational requirement – not testable	Restrict the requirement to the availability	Agreed. Modify text to read: "Recording

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					of such function	may also be terminated by means of a key or other secure method."
Germany	4.6.1		General/ Technical	Record interval of 1 sec is inappropriate for a slow progressing unit like a ship is. The aim to reconstruct any event could be reached with a much larger interval for any conventional ship. 1 sec takes massive storage capacity and increases the costs unnecessarily.	For HSC 1 sec interval should stay, for conventional ships decrease to 10 sec	Not agreed.
UK	4.6.1, 4.6.2  (also 4.6.7)	-	Editorial	Definition and abbreviation of 'EPFS' repeated. To be moved to 3.2  Similarly for 'SENC' in 4.6.7	Add to list of 3.2: EPFS Electronic Position Fixing System SENC System Electronic Navigation Chart.  Reduce references elsewhere to the abbreviations only.	Agreed. Add proposed change.
UK	4.6.2	sentence3	Editorial	Needs clarification; reword	The ship's position shall be recorded, as available on the ship, up to a resolution of 0,0001 min of arc.	Agreed. Add proposed change.
UK	4.6.3	1, last phrase	Editorial	Needs clarification; reword.	.....shall be recorded as available on the ship, up to a resolution of 0,1 knot.	Agreed. Adopt proposal.
UK	4.6.4	1	Editorial	Needs clarification; reword.	<i>As indicated by a designated ship's compass.</i> The ship's heading shall be recorded, as available on the ship, up to a resolution of 0,1°.	Agreed. Adopt as modified.

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USA	4.6.6, 5.7, 6.2.4.8, Annex B		Technical	This would add a capability for recording Global Maritime Distress and Safety System VHF digital selective calling (DSC) calls made to and from the ship. SOLAS IV requires ships be capable of receive VHF DSC calls, and also states that ships need no longer keep watch over VHF radiotelephone channels effective 1 Feb 2005. VHF voice communications will instead be initiated by VHF DSC.	Add 4.6.6 bis: "Communications digital selective calling (A.861 5.4.6). VHF DSC communications relating to ship operations shall be recorded independently of the VHF audio communications. The recording shall include both transmitted and received DSC digital information and shall be continuous from a directly connected fixed VHF set to be designated at installation. (see 5.7 for technical characteristics)  Modify 5.7 "Communications audio and DSC"  Modify 5.7.1 "Additionally, the status of the designated equipment, as well as DSC information, as available on the ship..."  Modify 6.2.4.8: Add "Communications DSC".  Add to Annex B (table): "Digital selective calling information", "4.6.6 bis", "DSC".	Not agreed.
UK	4.6.1, 4.6.2  (also 4.6.7)	-	Editorial	Definition and abbreviation of 'EPFS' repeated. To be moved to 3.2  Similarly for 'SENC' in 4.6.7	Add to list of 3.2: EPFS Electronic Position Fixing System SENC System Electronic Navigation Chart.  Reduce references elsewhere to the abbreviations only.	Agreed. Adopt as proposed.
France	4.6.9		Major technical comments as follow :	The document should explicitly mention that alarm information equivalent to both audible and visual signals must be recorded. Recording the sole audible part of the alarms does not comply with		Agreed. Add additional sentence to read: "The status of IMO mandatory alarms shall be recorded by the bridge audio and as a data parameter where practicable."



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				(A.861/5.4) because the recorded status becomes meaningless after the crew has acknowledged the audible signal.		
Germany	4.6.9	Annex C	General	Because the annex is named as informative it is not clear whether the record of these alarms is mandatory or not	Expand the requirement to the wording "as available by a centralised accessible alarm management"	Agreed. See France above.
UK	4.6.10	Sentence 2	Editorial	The device includes 'track' control.	<i>Status and settings</i> of heading or track controller, <i>if fitted</i> , shall also be recorded.	Agreed. Adopt proposal.
UK	4,5 & 6	-	General	Every REQUIREMENT in clause 4 or 5 needs a corresponding TEST in clause 6	Reword clause 6.1.4 as detailed in comment UK23 below to cover all requirements. Also include, as an informative Annex, a cross reference table. A draft Annex NN is attached. Write any additional TESTS, or refer to examination of manufacturers documentation, as needed.	Agreed. Adopt in 6.1.4.
Germany	5.1		Technical	The technical characteristic of relative resolution of 0,1 s is in contradiction to requ. 4.6.1 Res <= 1s. Technically this cannot be reached because NMEA serves 480 char/sec (4.800Bit/s) = 48 char/0,1 sec but each NMEA sentence can be 80 characters long. That means, that the processing time of all telegrams is longer than the accuracy of the time stamp required.	Change to 1 sec	Not agreed.
Norway	5.1	1	Technical	What about time stamps on individual data items that can be generated by the sensor device itself at time of sampling and follows the value through the protocol (e.g. GNS position and it is relevant for newer digital interfaces, e.g., the proposed IEC 61162-3 and 4 and other types of fieldbus standards)? Shall only the VDR time stamp be logged?	Add a note explaining relationship to logged time stamp.	Not agreed.

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				This may be acceptable, but it may be an idea to add a note saying that this is the case.		
UK	5.2	All	Editorial	There is no reference or test in 6.	See comment of 4/5/6	Agreed. Adopt as in UK 4/5/6
UK	5.3	3	Technical	The flotation requirement is perceived as virtually untestable.	Delete paragraph in toto.	Not agreed.
UK	5.4.2	Item .2	Editorial	The height of 3 m is incorrect and conflicts with the test in 6.1.13.5	A mass of 250 kg with a pin of 100 mm diameter, dropped from a height of 1 m, otherwise as specified in 5.3.2b of ED 56A.	Not agreed.
UK	5.4.2	Item .3	Technical	Revert to high temperature test, considered more appropriate to the marine environment. There is no comparable low temperature fire test in any other marine regulation.	A high temperature fire of 1100° C nominal for one hour, as specified in 5.3.2d of ED56A.	Not agreed.
USA	5.4.2.3		Technical	ED-56A is a standard from commercial aviation. The fire requirements in that community have evolved over many years of experience. They have found that specifying only a short duration, high temperature fire test or only a long duration, low temperature test was insufficient. Both were needed to ensure a high probability of data recovery. For this reason the VDR specification should reference both tests. If we do not take advantage of the aviation experiences with unrecoverable data we will be doomed to repeat them.	Add: A high temperature fire of 1100 C nominal for one hour, as specified in 5.3.2d of ED56A.	Agreed as proposed.
France	5.5.1			Installation guidelines : the protective capsule should be sited in the vicinity of the bridge..... The agreement was to replace should by shall.		Agreed. See uK 4.3.4.3.1.

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UK	5.5.1	Item 1.	Editorial	It is inappropriate to pre-empt the actual content of this section of the installation manual as a requirement.	Delete paragraph 2 (Criteria to be....) and the list items a) to e). If this detail is required then it should be moved to a new Informative Annex.	Not agreed.
UK	5.6	Heading	Editorial	Consistency with new heading for 5.7	Recording of bridge audio	Not agreed.
Sweden	5.6		Technical	Various requirements on bandwidth, dynamic range etc are present, but no requirements on the microphones are listed.	Locate a suitable international standard defining microphone requirements if possible, otherwise leave as it is.	Not agreed.
Italy	5.6.1	Sentence 1	Editorial	Microphones are sensors. Considers microphones part of the VDR. Therefore 5.6.1 is not compliance with (A.861) and not consistent with 3.1.2.	"The microphones forming the bridge audio data source are to be considered to be parts of the VDR" - Delete	Not agreed.
Germany	5.6.3 (5.7.3)		Technical	Voice recording for bridge shall cover frequencies from 150 – 6.000 Hz compared with voice recording on VHF channel from 150 – 3.500 Hz. Available signal processors are working with 5.5 KHz band with. Wherefore band with of 6 KHz would increase the amount of data to be stored and increase the costs for signal processors	Change band with of bridge voice recording to 5.5 KHz band with – it will not affect the quality of high frequency recording for reconstruction of voices, noise and alarms which occur on the bridge but decrease the costs	Not agreed.
USA	4.6.6, 5.7, 6.2.4.8, Annex B		Technical	This would add a capability for recording Global Maritime Distress and Safety System VHF digital selective calling (DSC) calls made to and from the ship. SOLAS IV requires ships be capable of receive VHF DSC calls, and also states that ships need no longer keep watch over VHF radiotelephone channels effective 1 Feb 2005. VHF voice communications will instead be initiated by VHF DSC.	Add 4.6.6 bis: "Communications digital selective calling (A.861 5.4.6). VHF DSC communications relating to ship operations shall be recorded independently of the VHF audio communications. The recording shall include both transmitted and received DSC digital information and shall be continuous from a directly connected fixed VHF set to be designated at installation. (see 5.7 for technical characteristics)  Modify 5.7 "Communications audio and DSC"	Not agreed.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
					<p>Modify 5.7.1 "Additionally, the status of the designated equipment, as well as DSC information, as available on the ship..."</p> <p>Modify 6.2.4.8: Add "Communications DSC".</p> <p>Add to Annex B (table): "Digital selective calling information", "4.6.6 bis", "DSC".</p>	
UK	5.7	Heading	Editorial	It is vague and meaningless as it stands.	Recording of communications audio	Not agreed.
UK	5.7.1	1	Editorial	Clarification and consistency with 5.6.1.	The audio connection with the designated VHF equipment shall be in accordance with the requirements of IEC 61097-7. The form of the connections are at the option of the manufacturer. However, for the purposes of testing, the connection shall be via a plug /socket combination referred to hereafter as the <b>input port</b> .	Not agreed.
Sweden	5.7.2		Technical	0 dB re 1 mW into 600 $\Omega$ (dBm) is a widely accepted reference level, but it is assuming output and input impedances of 600 $\Omega$ . The VDR is expected to have high input impedance to minimise load and a reference voltage corresponding to a voltage giving 1 mW into 600 $\Omega$ is preferred. The reference dBu is widely used to define this level.	".... Is defined as a voltage giving 1 mW into a load of 600 $\Omega$ . If an extension interface into the VDR is required it shall provide the same output at its maximum input level."	Agreed. Adopt the following text: add "...is defined as 0,775 V RMS." Delete – "If an extension interface into... at its maximum input level."
Germany	5.6.3 (5.7.3)		Technical	Voice recording for bridge shall cover frequencies from 150 – 6.000 Hz compared with voice recording on VHF channel from 150 – 3.500 Hz.	Change band with of bridge voice recording to 5.5 KHz band with – it will not affect the quality of high frequency recording for reconstruction of voices,	Not agreed. See also Germany 5.6.3.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
				Available signal processors are working with 5.5 KHz band with. Wherefore band with of 6 KHz would increase the amount of data to be stored and increase the costs for signal processors	noise and alarms which occur on the bridge but decrease the costs	
Germany	5.8.1.1		General/ Technical	Radar grab interval of 15 sec is a requirement and would be on the right place in section 4.6.7. Beside of this the interval itself is inappropriate for a slow progressing units like ships are. The aim to reconstruct any event could be reached with a much larger interval for any conventional ship. 15 sec takes massive storage capacity and increases the costs unnecessarily.	For HSC 15 sec interval should stay, for conventional ships decrease to 30 sec	Not agreed. Agreed that paragraph 3 of 5.8.1.1 be deleted, for consequential reasons.
Sweden	5.8.1.3		Technical	<p>System manufacturers are known to plan to interpret this to avoid expensive video input interfacing. This will be done by having the radar equipped with a digital interface outputting data that is created to generate images that should have the same information as the video output. The procedure does not guarantee that the image recorded is identical with the image displayed.</p> <p>The expression "...other forms of buffered outputs ..." leaves considerable interpretation headroom.</p>	<p>WG11 should interpret the IMO text and decide if the image recorded should be taken from the actual signal used for generation of the image or not.</p> <p>The same principle shall apply regardless of what signal format is used, video VESA or any other format for TFT LCD panels etc.</p> <p>Something like: "These outputs shall buffer the signal actually used to generate the image screen ." could be used after the current text in 5.8.1.3.</p>	Agreed. Add after current text in 5.8.1.3. Amend text to read: "These outputs shall buffer the signals actually used to generate the image screen."
Sweden	5.8.2.1		Technical	<p>The VDR playback equipment is required to have one output meeting VESA DMTS and another output meeting the requirements of 6.2.4.2., which in turn does not specify any requirements on this output.</p> <p>The method specified tries to avoid the problem. All the test equipment needed (Input image store "B", Interface "C", input monitor "D", playback equipment "F", output monitor "G", output image</p>	<p>Some additional text should be added to make it clear that the purpose of the test is to measure the image errors introduced between input (S2) / (S3) and the actually stored and replayable data.</p> <p>The important point is that colour and position errors as described are measured and that compliance with the required results is verified. It would seem possible to verify this by direct examination of stored data, using a test</p>	Not agreed.

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				store "H" and value comparator "I" ) is not specified while at the same time the whole test procedure relies heavily on the performance of this equipment.	set-up which differs from set-up defined in Figure 1.	
Germany	6		General	Some clauses of test section does not refer to a clause of the requirement section, e.g. 6.1.8, 6.1.9, 6.1.10.	Revise all references under the general condition that each requirement has to have in minimum one reference to the test section. On the other hand each test could reference to different requirements of section 4 but not only to the section 5 technical characteristics	Agreed.
UK	6.x (many)	-	Editorial	Some references are to IMO A.861 paragraphs.	Change to relevant IEC 61996 clauses	Agreed. Secretary has amended.
UK	4,5 & 6	-	General	Every REQUIREMENT in clause 4 or 5 needs a corresponding TEST in clause 6	Reword clause 6.1.4 as detailed in comment UK23 below to cover all requirements. Also include, as an informative Annex, a cross reference table. A draft Annex NN is attached. Write any additional TESTS, or refer to examination of manufacturers documentation, as needed.	Agreed. Previously agreed for UK 4/5/6.
Germany	6.1.4	point d) .2	Editorial	reference to 4.3.3.2 is not correct	Change reference to 4.3.4.3.2	Agreed.
Germany	6.1.4	point d) .3	Editorial	reference to 4.3.3.3 is not correct	Change reference to 4.3.4.3.3	Agreed.
UK.	6.1.4	1	Editorial	Convert into a "catch all" form.  The new wording proposed is based on a corresponding clause (5.1.6) in IEC 61097-7 (1996) GMDSS VHF Transmitter-Receivers.	Re word: The testing authority shall check, by inspection of the EUT, manufacturing drawings and other relevant documentation to be provided by the manufacturer, compliance with any requirements of clauses 4 & 5 for which no test is specified in this clause. This inspection shall include, but not be limited to, items in the list which follows. The result of this inspection shall be stated in the test	Agreed. See UK 4/5/6.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
					report.”	
UK	6.1.5	New clause or paragraph	Editorial	<p>Definition and clarification of “tests” and “checks” assists clarity in later clauses.</p> <p>These would then be called up as appropriate.</p>	<p>Modify 6.1.1 as follows:</p> <p>6.1.1 Definitions for clause 6 only</p> <p>6.1.1.1 Equipment under test (Take all text of current 6.1.1)</p> <p>6.1.1.2 Test input data</p> <p>Except where input data is detailed for individual tests, the following shall be applied for all general performance tests and checks. Test data streams for the audio and radar inputs shall be chosen to fully exercise the data processing methods. An exact copy of the data set shall be retained for comparison purposes.</p> <ul style="list-style-type: none"> <li>• Bridge Audio – The maximum number of microphones specified by the manufacturer shall be connected to the EUT. Audio signals consisting predominantly of speech at a level of approximately 75 dBA shall be presented to each microphone. A common loudspeaker may be used.</li> <li>• Communications Audio – The maximum number of communications audio inputs specified by the manufacturer shall be connected to the EUT. Audio signals consisting predominantly of speech at the level specified by the</li> </ul>	<p>Agreed. Changes as proposed inserted.</p> <p>Agreed.</p>

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
					<p>manufacturer shall be presented to each input.</p> <ul style="list-style-type: none"> <li>• Radar Data – A test video signal shall be presented to the EUT.</li> <li>• IEC 61162 Data Inputs – A representative data signal consisting of a continuous stream of appropriate IEC 61162 sentences shall be applied to each IEC 61162 input port. A timed log shall be kept of the input data to enable comparisons to be made.</li> </ul> <p>6.1.1.3 Full performance test The recorded data shall be viewed using the Playback equipment (see 6.1.2). Sufficient detailed examinations shall be made throughout the specified duration of the recording to ensure that recording was continuous and accurate. Typically, examinations of 30s duration should be made on all data channels at intervals of approximately 10 min throughout the duration of the recording. The results shall be in accordance with the individual test requirements.</p> <p>6.1.1.4 Performance check. An abbreviated qualitative examination should be made at least once on each data channel at the start of the check and then typically of 30 s duration at intervals of approximately 1 h or as appropriate to the individual test.</p>	<p>Agreed.</p> <p>As the result of this review of 6.1 it was necessary to clarify the definition of a suitable alarm as detailed in 3.1.8 by adding the following to 3.1.8 – “..of A.830 “but with an audible level in the range of 55 – 65 dBA.”</p>
UK	6.1.5	2	Editorial	Delete reference to “class” as it is no longer used in IEC 60945.	The manufacturer shall determine which components of the VDR system are in which EMC category, as	Agreed. Adopt proposed text.



National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
					defined in IEC 60945.	
UK	6.1.5	3	Editorial	Reword to clarify.  (The new wording is based broadly on paragraph 4 of clause 4.1 of IEC 60872-1 (1998) ARPA)	Replace paragraph 3 by:  Prior to detail tests, the equipment shall be subjected to, and by a series of performance checks be demonstrated to satisfy, the relevant requirements of IEC 60945.	Not agreed. See 6.1.1.
UK	6.1.6.1	Sentence 1	Editorial	Reword to clarify  (The final sentence is now part of 6.1.1.2)	The equipment shall operate continuously using normal external electrical power, recording test signals specified in 6.1.1.2 for a duration in excess of 12 h.	Agreed. See UK review of 6.1 – UK comment on 6.1.5.
UK	6.1.6.2		Editorial	Reword to clarify	By a series of performance checks the recording shall be demonstrated to, be continuous in compliance with the requirements of the appropriate sub-clauses of 4.5.	Agreed. See UK review of 6.1 – Uk comment on 6.1.5.
UK	6.1.7.1		Editorial	Reword to clarify  The second sentence belongs in 6.1.7.2 (required result)  The third and fourth sentences are included in 6.1.1.2 as amended.	Whilst operating using normal external electrical power and recording the test signals specified in 6.1.1.2, the power shall be removed for a period in excess of 2 h. The normal external electrical power shall then be restored for a period of 10 min and the test then terminated	Agreed. As previous comment.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
UK	6.1.7.2	Para 1	Editorial	Reword to clarify	A suitable alarm shall be generated when the normal external power is removed. As an exception to normal alarm requirements, the audible alarm shall be at a low enough level to permit other sounds on the bridge to be heard clearly on playback. Also, to conserve battery power, it shall be muted automatically after 2 min, if it has not been acknowledged in that period.	Agreed. As previous comment.
UK	6.1.7.2	Para 3	Editorial	Reword to clarify.  No allowance was made for the period of normal recording after power was restored.	After normal external electrical power has been restored it shall be demonstrated by performance checks that:  .1 the VDR resumes normal operation;  .2 at least 9 h 50 min of recording prior to the power interruption have been retained, followed by 2 hours of recording of only bridge audio, followed by 10 min of normal recording.	Agreed. As previous comment.
UK	6.1.8.2		Editorial	Simplification.	. As defined in 6.1.7.2	Agreed. As previous comment.
UK	6.1.9.1		Editorial	Reword to clarify.	The test of 6.1.7.1 shall be repeated but normal external electrical power shall be restored after a period of only 3 min instead of 2 h.	Agreed. Adopt proposed change.
UK	6.1.9.2		Editorial	Reword to clarify.	The alarm behaviour of 6.1.7.2 shall occur. After normal external electrical power has been restored it shall then be demonstrated by performance	Agreed. Adopt proposed change. With the exception of change "immediately" in .1 to "within one minute".

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
				No allowance was made for the period of normal recording after power was restored.	checks that:  .1 the VDR resumes normal operation immediately after the restoration of power.;  .2 At least 11 h 45 min of recording prior to the power interruption have been retained;  .3 recording of bridge audio continued during the power interruption	
Sweden	6.1.10	.2	Editorial	The bit error rate is required to be higher than 1 in 10 <sup>8</sup> .	".... signals shall not exceed 1 in 10 <sup>8</sup> ."	Agreed. Adopt as proposed.
Sweden	6.1.12		Technical	The text does not describe time correlation with image and audio data. There is a certain risk that the longer processing time for image and audio compression/decompression will affect synchroism.	To be considered by WG11.	Not agreed. Will be considered at the first maintenance cycle in 2006.
UK	6.1.12.1		Editorial	Reword to clarify	The VDR shall record the test data of 6.1.1.2 for a period of 30 min.. This recorded data shall be replayed	Agreed. See UK comment on 6.1.5 for review of 6.1.
UK	6.1.13.2	Para 1	Editorial	Reword completely to clarify and simplify	Test data signals as specified in 6.1.1.2 shall be recorded for 12 h.	Agreed. See UK comment on 6.1.5 for review of 6.1.
France	6.1.13.3			Tests and test sequence : the deep sea immersion test may be omitted if it can be proved that the final recording medium withstand the conditions associated with deep sea immersion and that the data in it will not be damaged as a consequence of the collapse of the protective capsule. The agreement was (similar to EUROCAE-ED-56A) : The deep sea immersion test can be done directly on		Agreed. Delete existing paragraph. New text as follows: "The deep sea immersion test can be carried out on the recording medium itself if it can be shown that the recording medium cannot be damaged as a consequence of collapse of the protective capsule."

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
				the recording medium itself if it is unlikely to be damaged as a consequence of collapse of the protective capsule.		
UK	2.1 & 5.4.2 & 6.1.13.4		Editorial	IEC 68-2-27:1987 has been renumbered	Replace by IEC 60068-2-27	Agreed.
Sweden	6.1.13.5		Technical	A drop height of 1 m is specified, while 3 m is specified in 5.4.2.	Align sections.	Agreed that the height should be 3 m. See also UK comment at 5.4.2.
USA	6.1.13.5		Editorial	Typographical error	height of 3 m.	Agreed.
USA	6.1.13.6		Technical	See above	Add: The protective capsule shall be subjected for one hour at 1100 C, to the requirements of 5.3.2d of ED56A – amendment 1	Agreed. Amend text as follows: 6.1.13 – after “heading” as “see (4.3.4)” 6.1.13.1.1 – change “the sealed capsule” to “the protective capsule” and delete the word “shells”. 6.1.13.3 – add “High temperature fire test” 6.1.13.6 Amend to read “The protective capsule shall be subjected to a low temperature fire test for ten hours at 260 <sup>0</sup> C and a high temperature fire test of one hour at 1 100 <sup>0</sup> C, to the requirements of ED56A, amendment 1.” Add also in 6.1.13.3 agreed text to cover tests on more than one EUT.
UK	6.1.13.6		Editorial	To align with previous UK comment on 5.4.2	The protective capsule shall be subjected for one hour at 1100 <sup>0</sup> C, to the requirements of 5.3.2d of ED56A – amendment 1	This was not agreed at 5.4.2 for other reasons. However see USA above.
UK	6.1.13.9	Para 2 sentence4	Editorial /technical	There are no pass / fail criteria.  Reword	Recordings shall meet the requirements of the performance test specification as set out in 6.1.1.3 with at least 75% of the data being recoverable.	Agreed to adopt the proposed text with a change of “99%” for “75%”.
France	6.1.13.9			Required results : .....A comparaison shall be made of the stored data and the retained copy ..... The result of the comparaison is not		Not agreed. See previous UK comment.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
				clearly indicated. It was agreed that not any error is allowed. Comment on the recovery of the stored data after the low temperature fire test (2560°C during 1h)		
France	6.1.13.9			Required results : ..... No repairs to the final recording medium shall be permitted .... This position is much more restricting for the VDR than for the crash recorders for aircraft, specially for the 260°C fire test. It is proposed to come back to the EUROCAE ED 56A recommendations § 5.3.1 c 3 (test procedures for crash survival) for only the sequence of test involving low temperature fire, removal of the individual memory devices to allow information recovery either separately or in combination after re-attachment to the original or a replacement memory module.		Agreed. The text was amended to read "Repairs to the final recording medium shall be minimal."
Sweden	6.2		Technical	The method described will require test houses to build non-standard complicated and expensive test equipment capable of proving exact pixel reproduction. The proposed required measurement values will accept rather distorted pictures (as demonstrated in WG11 meeting), making the expensive set-up not very meaningful.	Using a predetermined set of test pictures it would be possible to verify performance optically (using image screen(s)) or, as an alternative, electrically, measuring electrical interface signal to monitor pixel by pixel performance.  Resolution, linearity and colour deterioration should be possible to express numerically.  A proposed text is supplied as a separate document.	Not agreed.
Germany	6.2.4.4.3	point 1.	Editorial	the interval $1/8 \leq l < 1/8$ seems to be not logical	please check	Agreed.
Germany	6.2.4.6.1.1		Editorial	last line: interval $0 \leq l = j \leq n-1, n-1$ is not correct	change into $0 \leq l = j \leq n-1$	Agreed.
Germany	6.2.4.6.1.2 and 6.2.4.6.2.2		Editorial	first line: interval $0,99 \leq m + c \leq 1,01$ is not correct	change into $0,99 \leq m \leq 1,01$	Not agreed. It is intended that the image stays in the scanned area.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
USA	6.2.4.7.1		General	The experienced marine radar observer who will be called upon to compare the original and the recorded images should be properly licensed or certificated to operate the specific radar equipment. If not then the quality of the test method should be considered questionable.	Modify the passage to read, "An experienced marine radar observer properly licensed and/or certificated to operate said equipment shall be called upon to...."	Agreed. Adopt change as follows: "A competent person shall be called upon to..". As a consequence change also 6.2.4.7.2 – delete "marine radar observer" insert "competent person."
USA	4.6.6, 5.7, 6.2.4.8, Annex B		Technical	This would add a capability for recording Global Maritime Distress and Safety System VHF digital selective calling (DSC) calls made to and from the ship. SOLAS IV requires ships be capable of receive VHF DSC calls, and also states that ships need no longer keep watch over VHF radiotelephone channels effective 1 Feb 2005. VHF voice communications will instead be initiated by VHF DSC.	<p>Add 4.6.6 bis: "Communications digital selective calling (A.861 5.4.6). VHF DSC communications relating to ship operations shall be recorded independently of the VHF audio communications. The recording shall include both transmitted and received DSC digital information and shall be continuous from a directly connected fixed VHF set to be designated at installation. (see 5.7 for technical characteristics)</p> <p>Modify 5.7 "Communications audio and DSC"</p> <p>Modify 5.7.1 "Additionally, the status of the designated equipment, as well as DSC information, as available on the ship..."</p> <p>Modify 6.2.4.8: Add "Communications DSC".</p> <p>Add to Annex B (table): "Digital selective calling information", "4.6.6 bis", "DSC".</p>	<p>Not agreed.</p> <p>Not agreed.</p> <p>Agreed. Delete 2<sup>nd</sup> paragraph of 5.7.1.</p> <p>Not agreed.</p> <p>Not agreed.</p>
Sweden	6.3		Technical (Editorial?)	The manufacturer is required to verify that interfaces fulfils the requirements of	"... interfaces meet the requirements in IEC 61162."	Agreed. Delete reference to 5.5.1.5.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
				<p>4.3.6 and 5.5.1.5.</p> <p>4.3.6 makes reference directly to IEC 61162.</p> <p>5.5.1.5 contains a reference back to 4.3.6.</p>		
USA	New Annex	Annex D - Informative	Technical	<p>This informative annex would provide as an option means for interconnecting equipment using the high data rate capability of IEC 61162-3 network interface. The future IEC 61162-3 supports all IEC 61162-1 defined sentences in addition to it's own defined data formats. This single network interface could potentially provide all the data currently provided by all IEC 61162-1 interfaces currently defined in this IEC 61996 (VDR) standard. Additionally, this network connection would allow VDR to record the output from a universal shipborne automatic identification system (AIS) defined by IMO and ITU (ITU-R Rec. M.1371), whose carriage will likely soon be mandated on ships. AIS display output will be provided by an IEC 61162-3 interface</p>	<p>Add: Annex D (Informative)</p> <p>A connector, meeting the requirements of IEC 60945, is designated as the IEC 61162-3 input/output port. The connector type and pin assignments are shown in Table xx (below).</p>	<p>Not agreed. Will be considered at the first maintenance cycle review in 2006.</p>
USA	New Annex, reference 4.4.1	Annex E – Informative (Data block information)	General	<p>Include vessel data elements regarding pitch and roll. This data can be used to correlate the stability of the vessel with known weather conditions at the time.</p>	<p>Include the following in the data block:</p> <p>Vessel roll, including rate and range of motion.</p> <p>Vessel pitch, including rate and range of motion measured from (consult with experts regarding the most appropriate measurement location).</p>	<p>Not agreed. See previous USA comment.</p>

**DRAFT**  
**Annex NN (Proposal from the UK)**

**Requirement / Test cross-reference list.**

<b>SUBJECT</b>	<b>REQUIREMENT CLAUSE</b>	<b>TEST CLAUSE</b>
Design and construction	4.3.1 (+ 4.4 & 4.5)	6.1.5
Sequential records	4.3.2 (+ 4.6)	6.1.11
Date/time correlation	4.3.3 (+ 4.6.1)	6.1.12
Protective capsule	4.3.4.1 (+ 4.3.4.2 & 4.3.4.3)	6.1.13
Construction	4.3.4.3.1 (+ 5.2 & 5.4)	6.1.13
Visibility and marking	4.3.4.3.2	6.1.4
Location device	4.3.4.3.3 (+ 5.3)	6.1.13.10
Assessment of medium	4.3.5	6.1.13.6
Interfaces	4.3.6 + 5.5.1.5 (+ 5.6.1, 5.7.1, 5.8.1) <del>Also note para 3, re 60945.</del> <del>And para 4 re fault conditions</del>	6.3
Selection of data items	4.4.1 (Heading)	6.2.1
Configuration data block	4.4.1 (para 2)	None, 6.1.4 as amended, by default.
Resistance to tampering	4.4.2	6.1.4
Operation	4.5.1	6.1.4



SUBJECT	REQUIREMENT CLAUSE	TEST CLAUSE
Saving / copying data store.	4.5.1 List, 1. - 4.	None, 6.1.4 as amended, by default
Power source	4.5.2	6.1.15
Reserve power source	4.5.3 (+ 4.6.5)	6.1.7
Recording period	4.5.4 (+ List + 4.5.1 & 4.5.3)	6.1.6
Data items to be recorded	4.6	6.2
Date and time	4.6.1	6.2.1
Ship's position	4.6.2	6.2.1
Speed	4.6.3	6.2.1
Heading	4.6.4	6.2.1
Bridge audio	4.6.5 (+ 5.6)	6.2.2
Communications audio	4.6.6 (+ 5.7)	6.2.3
Radar	4.6.7 (+ 5.8)	6.2.4
Echo sounder	4.6.8	<del>6.2.4.8</del> 6.2.5 {Note: The numbering in CDV is incorrect. Main heading 6.2.4 refers to RADAR. 6.2.4.8 should be 6.2.5}
Main alarms	4.6.9	<del>6.2.4.8</del> 6.2.5
Rudder orders etc	4.6.10	<del>6.2.4.8</del> 6.2.5

SUBJECT	REQUIREMENT CLAUSE	TEST CLAUSE
Engine orders etc	4.6.11	<del>6.2.4.8</del> 6.2.5
Hull openings	4.6.12	<del>6.2.4.8</del> 6.2.5
Watertight etc doors	4.6.13	<del>6.2.4.8</del> 6.2.5
Accelerations & hull stress	4.6.14	<del>6.2.4.8</del> 6.2.5
Wind speed	4.6.15	<del>6.2.4.8</del> 6.2.5
Co-relation in date etc	5.1	6.1.12.4
Particulars for capsule	5.2 (+ 4.3.4.3.3)	6.1.13 6.1.4
Location beacons	5.3	6.1.13.10
Survival of data	5.4	6.1.13.9
Long term retention	5.4.1	6.1.4
Following an incident	5.4.2	6.1.13
Documentation	5.5	6.1.4
Bridge audio	5.6	6.2.2
Comms audio	5.7	6.2.3
Radar	5.8	6.2.4

Proposal from the USA

New Annex D - Informative

Table xx – IEC 61162-3 Network Connector	
Connector: 5-pin Mini-C	
Polarity: Receptacle (socket) with internal threads	
Pin	AIS Name
1	Shield
2	NET-S (+12 Volts)
3	NET-C (Common)
4	NET-H (Data High)
5	NET-L (Data Low)